

**FACTORS IFLUENCING ADOPTION OF MOBILE PAYMENT ON
REVENUE COLLECTION IN TEMEKE TAX REGION**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE MASTER DEGREE OF BUSINESS
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CERTIFICATION

The undersigned certify that we have read and hereby recommend for acceptance by the Open University of Tanzania, a dissertation/thesis entitled **Factors Influencing Adoption of Mobile Payment on Revenue Collection in Temeke Tax Region** in partial fulfillment of the requirements for the master degree of Business Administration in Human Resource Management of the Open University of Tanzania.

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DECLARATION

I, Nsubili Tusekelege Isaga, do hereby declare that this thesis is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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ABSTRACT

This study assessed the key factors influencing the adoption of mobile payment systems in revenue collection. In order to fulfil that objective, hypotheses were formulated based on the factors that influence adoption of mobile payment systems in Tanzania Revenue Authority. Those factors were divided into four main categories namely: the technological factors, trust and security factors, social factors and economic factors. This study employed survey design whereby data collected through quantitative research methods through questionnaires. The study was carried out at TRA Temeke tax region. It involved 180 respondents i.e. 170 Mobile users, 04 TRA's management and 06 TRA agents. The data collected from respondents were analyzed step wise using predictive analysis software (PASW). The results revealed that Non repudiation, Latency, cost, and security statement influences adoption of mobile payment systems. Moreover, hypotheses based on reliability, customer base, monetary convert ability, anonymity, privacy and transaction procedures were insignificant hence rejected. The findings indicated that Technological acceptance model have been partially supported by the study, because, when measured Technological factors two sub variables were significantly supported mobile payment systems adoption. The study recommended that the government and telecommunication companies should take into consideration non repudiation, latency, cost, and security statement to increase adoption. Moreover, future research should study on reliability, customer base, anonymity, privacy and transaction procedures on their influence in adoption of mobile payment systems.

TABLE OF CONTENTS

CERTIFICATION	ii
COPYRIGHT	iii
DECLARATION.....	iv
ACKNOWLEDGEMENT.....	v
ABSTRACT	vi
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF ABBREVIATIONS	xiii
CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 Background to the Study	1
1.1.1 Electronic Payment.....	1
1.1.2 Adoption of Mobile Payment in TRA	3
1.2 Statement of the Problem.....	4
1.3 Purpose of the Study	6
1.3.1 Objectives of the Study.....	6
1.4 Scope of the Study	6
1.5 Significance of the Study.....	7
CHAPTER TWO	8
2.0 LITERATURE REVIEW	8
2.1 Introduction.....	8
2.2 Theoretical Literature Review	9
2.2.1 Technology Acceptance Model	9

2.2.2 Motivational Model	10
2.2.3 Theory of Planned Behaviour	11
2.2.4 Innovation Diffusion Theory	11
2.2.5 Bandura's Cognitive Theory	12
2.2.6 The Relationship of the Theories to the Study	13
2.3 Empirical Literature	14
2.3.1 Factors Influencing Adoption of Mobile Payment Systems	15
2.3.2 Technological Factor	15
2.3.3 Economic Factors	16
2.3.4 Social Factors	17
2.3.5 Security and Trust	18
2.4 Research Hypotheses	19
2.5 Framework and Research Model	20
CHAPTER THREE	23
3.0 RESEARCH METHODOLOGY	23
3.1 Introduction	23
3.2 Research Design	23
3.3 Study Area	24
3.4 Study Population	24
3.5 Units of Analysis	24
3.6 Sample Selection	25
3.6.1 Non-probability	25
3.6.2 Sample Size	25
3.7 Types and Sources of Data	26

3.7.1 Primary Data	26
3.7.2 Secondary Data	27
3.8 Data Collection Methods	27
3.9 Validity and Reliability Issues.....	28
3.10 Data Analysis Methods.....	29
CHAPTER FOUR.....	30
4.0 PRESENTATION OF FINDINGS.....	30
4.1 Introduction.....	30
4.2 Sample Characteristics.....	30
4.2.1 Number of Respondents	30
4.2.3 Respondents Age	31
4.2.4 Occupation.....	32
4.2.5 Application Conducted by Mobile phones	32
4.2.6 Experience	33
4.3 Detailed Data Analysis	34
4.3.1 Hypothesis Testing	34
CHAPTER FIVE.....	46
5.0 DISCUSSION OF THE STUDY FINDINGS.....	46
5.1 Introduction.....	46
5.2 Discussion of the Hypothesis.....	48
5.2.1 Technological Factors.....	48
5.2.2 Economic Factors	49
5.2.3 Social Factors.....	50
5.2.4 Trust and Security.....	52

5.3	Conclusion	53
CHAPTER SIX		55
6.0 SUMMARY, CONCLUSIONS, AND POLICY IMPLICATIONS		55
6.1	Introduction.....	55
6.2	Summary.....	55
6.3	Conclusion	55
6.4	Recommendations.....	56
REFERENCES.....		77

LIST OF TABLES

Table 4.1: Number of Respondents.....	30
Table 4.2: Respondent Gender	31
Table 4.3: Respondents Age	31
Table 4.4: Respondent Occupation	32
Table 4.6: Respondents Application Used	32
Table 4.7: Experience on the use of Mobile	33
Table 4.8: Technological factors Simple Regression Analysis.....	36
Table 4.9: Summary of Technological Factor Hypotheses Testing.....	37
Table 4.10: Economic Factors simple Regression Analysis	38
Table 4.11: Summary of Economic Hypotheses Testing.....	39
Table 4.12: Social Factors and Adoption Simple Regression Analysis.....	40
Table 4.13: Summary of Social Factor Hypotheses Testing.....	41
Table 4.14: Trust and Security Simple Regression Analysis	43
Table 4.15: Summary of Trust and Security Hypotheses Testing	44
Table 4.16: Summary of all Hypotheses Testing	45

LIST OF FIGURES

Figure 2.1 Conceptual Model of the Mobile Payment Adoption.....	21
Figure 4.2 Application used	32
Figure 4.3 pie chart on experience on the use of Mobile	33

LIST OF ABBREVIATIONS

ATMs	Automated Teller Machines
B2B	Business to Business
BI	Behaviour Intetion
CEO	Chief Executive Officer
CRDB	Cooperative and Development Bank
DPA	Digital Personal Assitant
DOI	Diffusion of Innovation
EC	Electronic Procurement
ICT	Information and Communication Technology
ID	Identity
IS/IT	Information Systems/Echnology
EPS	Electonic Payment Systems.
MRO	Maintainance Repair Operation
NBC	Natinal Bnk of Commerce.
PEOU	Perceived Ease to Use.
PU	Perceived Ussefulness.
PCB	Perceived Behaviour Control.
SPSS	Statistical Package for Social Science
TPB	Theory of Planed Behaviours
TAM	Technological Acceptance Model
TRA	Tanzania Revenue Authority

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

For decades, man has known the importance of communication. Today, with various means by which one can communicate, it has become much easier to communicate a message to the other party, than it was several decades ago. Every organization, no matter what their expertise and where they are situated, and what scale they operate, realize and value the importance of good communication. This communication for organizations takes place both within the organization as well as with other outside stakeholders outside. Therefore, it is vital for any business organization to understand the communication models out there, so they can use them for enhancing effective communication in the organization (Dornan, 2001).

The new model of mobile payment service designed to simplify the functions of communications between two parties, this make it much easier to decode what the other party wants without too much trouble. This process of communication kept simple and to the point, should not usually have too many issues, and the message will be easily understood by both parties.

1.1.1 Electronic Payment

Mobile payment is defined as the transfer of an electronic value of payment from a payer to a payee through an e-payment mechanisms, Payment services exist as web-based user-interfaces that allow customers to remotely access and manage their bank accounts and transactions (Lim, 2008; Weir et al., 2006).

Tanzania has made the progress in usage of mobile payment whereby it is recognized by BOT (2000) that there is distinctive categories of payment systems using payment cards this are either of Credit, Debit or Electronic purse (e-purse) functionality and an effective payment system consists of efficient and secure payment instruments, among other components. Such instruments should be designed, developed and deployed in such a way as to ensure that minimal, or no risks, are introduced to the national payment system, paying particular attention to the area of systemic risk (BOT, 2000). As discussed by BOT (2000) Electronic Purse functionality is a stored value card containing an application that stores a record of funds available, which is updated as transactions are made. Electronic pursue functionality as defined can be applied to electronic payment used in Tanzania that is mobile phone account which are updated as transaction are made. Tanzania Mobile payment used can be mobile phone account like m-pesa by Vodacom, Airtel money by Airtel, easy money by Zantel and Tigo pesa by tigo and ATMs in recent days.

Given the number of mobile phones around the world, it is no surprise that notion has been gaining ground that the phone can also be effectively used as a transactional device. In particular telecommunications industry, looking for ways to increase revenue in unsettling times, firmly pursues the options available allow consumers to pay for products and services using their mobile phones (Dornan, 2001). A prerequisite to carry out transactions using a mobile phone is an effective mobile payment system. However, no standardized, widely adopted mobile payment system has yet emerged, and this is believed to be one of the factors that inhibit widespread use of mobile commerce (Carlson 2001; Hampe & Swatman, 2001; Kruger 2001).

Since the mobile payment systems application has two main functions. First, it allows customers to deposit cash to and withdraw cash from their accounts by exchanging cash for electronic value at a network of retail stores. Second, it allows users to transfer funds to others, to pay bills, and to purchase mobile airtime credit. Retail stores are paid a fee by network owners; for example, Vodacom, Airtel, tiGo, and Zantel. Each time they exchange cash on behalf of customers.

The study on mobile payment system tends to be important since it creates employment and serve people who have no access to banks especial in rural area. The number of licensed telecommunications operators increased from 5 in 2003 to 62 in 2009. Most of these were issued under the Convergence Licensing Framework (CLF), which the TCRA affected in 2006. Voice subscribers (mobile and fixed-line) increased from about 1.5 million in 2003 to 17 million in 2009, while tile-density increased from 4% to 43% during the same period (Mary & Bettina, 2010). The Tanzania telecommunications market has been characterised by huge growth in mobile markets which contrasts with relative stagnation in the fixed line sector. The market is very competitive with the following operational service providers: Fixed network operators: Tanzania Telecommunications Company Limited & Zanzibar Telecommunications Limited Mobile network operators (TCRA, 2011).

1.1.2 Adoption of Mobile Payment in TRA

Tanzania Revenue Authority (TRA) is the governmental institution established by Act of Parliament Not. 11 of 1995, and started its operations on 1st July 1996. In carrying out its statutory functions, TRA is regulated by law, and is responsible for administering impartially various taxes of the Central Government. The vision of

TRA is increase revenue to GDP to 19.9% by 2018 while its mission is to make it easy to pay tax and make lives better.

In the beginning TRA was providing most of its information on their website and customers could access through their devices. Despite that improvement customers were still going to the TRA offices in order to get assistance and complete some of other actions which were not able to be completed online like payment of the tax, knowing the amount to be paid for the road license etc. As the number of customers increase, the TRA faced problem of handling the large number of customers despite of opening supporting/regional offices and took advantage of the new technologies by providing their services via mobile phones.

In 2013, TRA introduced the first mobile payment which was able to allow customers to access the information of their motor vehicle license through mobile phones by sending message to a special reserved code and get a reply about the amount to be paid and reference number where also the customer could make use of the mobile money or bank to pay the amount and only go to the TRA office for certificate collection. This study intends to examine the factors influencing adoption of mobile payment in revenue collection and conducted in Temeke Regional Office.

1.2 Statement of the Problem

There is a significant growth in the use of mobile phones in Tanzania in the last few years. The number of mobile subscribers increased from 17.8 millions in March 2010 to 27,442,823 by the end of 2013 (Tanzania Communications Regulatory

Authority, 2014). Also, the use of electronic payment systems, especially the mobile payment systems, has grown significantly over time and contributed towards wider outreach of financial services to unbanked populations in both rural and urban areas of the country (Bank of Tanzania Supervision Annual Report, 2013). Most of organizations are transforms their payments system and other services through mobile phones, however citizen are still reluctant on taking advantages of the new technology as most of them are used to traditional way of getting services.

Tanzania Revenue Authority started mobile services since 2013, customers were able to access their taxes through mobile phones and pay taxes via mobile money or banks. It was observed that most customers preferred to pay taxes through bank despite the fact that the process would still take them more time. Customers lack trust on mobile money as well as not concentrating on the significance of mobile services to their lives. In additional to that some customers are just not willing to use new innovations. TRA has put new conditions for forcing customers to use mobile services provided by the organization by stopping receive payments from bank, however customers still go to the nearby offices and request assistance from TRA expertise despite of the easiness use of service provided. Yet few studies have investigated the contribution of mobile payment on revenue performance and customer perceptions and further the challenges associated with using mobile in revenue collection. Then the study aim at knowing exactly which factor influencing adoption of mobile service on revenue collection as most of Tanzanian currently adopt the service. So, mobile payment help them to do some transaction instead of banks Also mobile payment are easily done by many Tanzanian since they own

mobile phone and mobile phone are sold cheaper even low income earners can afford and do not have complicated terms as banks. Lastly, this study helps the organization to focus on these factors and this could make at least clear on how to improve for the better of rising revenue collection.

1.3 Purpose of the Study

The purpose of this study is to examine the factors influencing the adoption of mobile payment on revenue collections.

1.3.1 Objectives of the Study

- To examine if technology factors influences the adoption of mobile payment. on revenue collection.
- To examine if social factors influences the adoption of mobile payment on revenue collection.
- To examine if economic factors influence the adoption of mobile payment on revenue collection.
- To examine if security and trust aspect influences the adoption of mobile payment on revenue collection.

1.4 Scope of the Study

The study focused on factors influencing adoption of mobile payment on revenue collection in Temeke tax region. The main variables that were studied in this study were technological factors, economical factors, social aspects and security and trust. The sample comprised mobile users, TRA staff and mobile service providers. It was done in Temeke tax region.

1.5 Significance of the Study

The study has theoretical and practical contributions by achieving the following:

- i) Provision of better theoretical understanding of the reasons and factors influencing adoption of mobile payment in revenue collection. Tanzanian Revenue Authority can develop better and sound usage and adoption model of mobile services in revenue collection for its organization environment based on the study findings.
- ii) Showing the current status on the use of mobile payment as well as projects that have been established so far (significance, challenges and way forward).
- iii) Lastly, the study is important to scholars to undergo further investigation on mobile payment systems that has been used by many Tanzanian without knowing its strengths and weaknesses.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter consists of theoretical frame work, theoretical argument and empirical literature. E-commerce is narrower than e-business, and focuses only on the buying and selling of products and services on the internet. There are many types of e-commerce such as business between enterprises (B2B), business between enterprises and consumers (B2C) and business between consumers performed through (C2C) (Naeem & Bashi, 2011).

Electronic-cash are transactions settled via the exchange of electronic currency. Electronic cash is a method of payment in which a unique identification number is associated with a specific amount of money. Electronic cash is often referred to as e-cash or cyber cash (Chou et al., 2004; Jewson, 2001; Stalder, 2002; Wright, 2002).

Electronic Payment is defined as the transfer of an electronic value of payment from a payer to a payee through an e-payment mechanism's, Payment services exist as web-based user-interfaces that allow customers to remotely access and manage their bank accounts and transactions (Lim, 2008; Weir et al., 2006) using a mobile device in return for goods or services.

Mobile payments (m-payments) are defined as payments that are carried out via the mobiles (Kruger, 2001). Also Mobile payment can be defined as "paying for goods or services with a mobile device such as a phone, personal digital assistant (PDA), or

other such device” (Liu. et al., 1990). Therefore, the mobile payment can be defined as the process of two parties exchanging financial value.

2.2 Theoretical Literature Review

The e-payment literature indicates that technological factors, social factors, economic factors and trust and security are dimensions crucial for e-payment adoption. Previous e-payment studies applied various theories to examine the determinants of e-payment adoption and effectiveness. This research studies identifies major theoretical perspectives related to e-payment namely social Cognitive Theory, Motivational model, Technology Acceptance Model, and Diffusion of Inn.

The e-payment theories is explained by the uses of a class of models of money and the payments system to inform an analysis of "mobile banking" in the context of the rapid expansion of MOBILE, a new technology in Kenya that allows payments via mobiles (even without any access to a bank account), and currently reaches close to 38 percent of Kenyan adults.

The separation of households and firms in space and time suggests from various separate models (William et al., 2010). The study use technological acceptance theory, motivational model, diffusion innovation theory, social cognitive theory because the theories there are among the adoption theories, used to study how people adopt something new and this involve adoption of mobile payment systems.

2.2.1 Technology Acceptance Model

The Technology Acceptance Model (TAM) (see Davis et al., 1989) is an information systems theory that models how users come to accept and use a technology. The

model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived usefulness (PU) - This was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance Perceived ease-of-use (PEOU) - Davis defined this as "the degree to which a person believes that using a particular system would be free from effort" (Davis et al., 1989). Both PU and PEOU are jointly influence customers intentions. Behavior intension (BI) is a measure of strength of one's intention to perform a specified behavior. According to intention-based theories, user adoption and usage behavior are determined by the intention to use IT. It is a kind of "self-prediction" or "behavioral expectation" indicated as one of the most accurate predictors available for an individual's future behavior (Davis, 1989).

The literature, for example by Abbad et al. (2009); and Lee (2010) indicates that the Technological Acceptance Model (TAM) has been widely used to support the adoption and utilization of information systems. Similarly, the adoption of e-payment systems can be understood by application of the TAM.

2.2.2 Motivational Model

According to Deci (1975), motivation is a conduct which deals with environment, and tends to motivate a person's need to feeling competent and self-determining. This intrinsic motivation will decrease if the person is not attaining enjoyment from the activities. Nevertheless, extrinsic motivation activities linked extrinsic rewards, which consequently correlated to satisfaction of primary drives of archiving goal set.

Motivational as explained used to influence people use something new or anything which is needed to exist as explained how workers motivated this can similarly use in adoption of mobile payment.

2.2.3 Theory of Planned Behaviour

Theory of planed behavior suggests that since people do not have full control over their online payment transactions, perceived behavioral control should become a critical component of m-payment adoption. Perceived behavioral control encompasses two components namely “self-efficacy” and “facilitating conditions” (Mathison, 1991; Taylor & Todd, 1995).

Self-efficacy is an individual’s self-confidence in his or her ability to perform a behavior (Bandura, 1982); while facilitating conditions representing the resources needed to engage in a behavior (Triandis, 1971). Theory of planed behaviour captures the internal psychological variables through which numerous external variables studied in Information Systems (IS) research achieve their influence on user acceptance, and may provide a common frame of reference within which to integrate various disparate lines of inquiry (Jhao-Yin Li, 2008).

2.2.4 Innovation Diffusion Theory

Rogers (2003) states that the adopters of any new innovation or idea can be classified into one of five categories: innovators, early adopters, early majority, late majority, and laggards. After analysing a variety of previous innovation diffusion studies, (Rogers, 1983, 2003) point out the main factors influencing the adoption of

innovation, five attributes of innovation are determined: Relative Advantage, Compatibility, Observability, Complexity, and Trialability (see Rogers, 2003). The main concern of the innovation diffusion research centers on how innovations are adopted as well as the reasons behind innovations is adopted at different rates.” (Rogers, 1995) goes on stating there are four main elements of diffusion innovation, time, communication, and social system. Expanding from the four main elements, Rogers defines diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1995).

2.2.5 Bandura’s Cognitive Theory

Cognitive theory (1986) goes to explain the relationship between a person’s behaviors, personal factors such as Cognitive skills or attitudes, and the environment. Each can impact and be impacted by the other, or it influences one another. Social cognitive theory is a view that individuals possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings and actions, “What people think, believe, and feel affects how they behave” (Bandura, 1986). In his view of human behavior, “No man’s an island”, as human lives are not lived in isolation, people work together on shared beliefs about their capabilities and common aspirations to better their lives. Thus, environments and social systems influence human behavior on an enormous scale.

Social cognitive theory has been utilized in a number of disciplines due to its dynamic nature as it considers human behaviour to constantly change. It has been

applied in business through the analysis of organizational management (Bandura, 1997), and technological innovation adoption (Compeau et al., 1999). Social cognitive theory emphasizes that the adoption process of technology involves encouraging individuals to ensure that they will have the necessary skills and confidence to use a new or existing technology (Compeau et al., 1999). Similarly to adoption of mobile payment system using social cognitive theory individual are encouraged to adopt and use mobile payment.

2.2.6 The Relationship of the Theories to the Study

2.2.6.1 Technology Acceptance Model TAM

The study is about determinants of mobile payment systems in revenue collection. As the nature of this study, there is a need of technology in order to facilitate its use and customers need to be convinced with good network for them to continue using the mobile network. Also, the company has to ensure good services to their customers through good technology (Workman, 2007).

2.2.6.2 Motivational Model

For people to choose a certain brand, need motivation like promotion which could make them to use any brand and also workers need motivation to boost the company and to serve customers by giving workers rewards, gifts and different motivation like recreation to workers to continue serving the company (Rmullenger, 2007).

2.2.6.3 Theory of Planned Behaviour

For any company to engage in a business must investigate on the behavior of the customers the company intends to serve. Behavioral control facilitates information

acquisition as the citizens have the opportunity and resources to manage such behavioral activities. Similarly, in terms of providing information, a sense of control over how personal information will be managed and used will be likely to affect the behavior (Fishbein & Cappella, 2006).

2.2.6.4 Innovation Diffusion Theory

A new idea adopted, even when it has advantages, is very difficult the main concern of the innovation diffusion research, diffusion research centres on how innovations are adopted as well as the reasons behind innovations is adopted at different rates. The idea of mobile payment improve day by day due to innovation that make the customers to go on using the mobile network, example innovating different services to pay using Mobile and they have to innovate every day for the company to exists. So, mobile payment systems need to be innovative to improve services and retain the customers (Everett, 2013).

2.2.6.5 Bandura's Cognitive Theory

Social cognitive theory is a view that individuals possess self-beliefs that enable him or her to exercise a measure of control over their thoughts, feelings and actions. In this theory the company has to make the customers think positively about the services provided in order to retain the customers (Bandura, 1977).

2.3 Empirical Literature

This section of the literature review builds its strengths on the empirical findings that have been presented by different authors following series of tests of the adoption theories that were tested in the practical world of the electronic payment systems.

The review is segmented into the factors that influence Adoption of mobile payments in.

2.3.1 Factors Influencing Adoption of Mobile Payment Systems

The literature on adoption and Diffusion of Innovation s (including information technology) has mostly focused on the factors affecting adoption and diffusion. These factors have been classified into four main groups or other categories that can be reconnected to these four groups: technological context, economic context, trust and security and social context.

2.3.2 Technological Factor

2.3.2.1 Reliability

The e-payments must be available online 24 hours a day. That is the operation system of e-payment should not present failures at any time (Neuman & Medvinsky, 1995). Reliability refers to the consistency of a measure. A test is considered reliable if we get the same result repeatedly. For example, if a test is designed to measure a trait (such as introversion), then each time the test is administered to a subject, the results should be approximately the same. Unfortunately, it is impossible to calculate reliability exactly, but it can be estimated in a number of different ways (Cherry, 2011).

2.3.2.2 Non Repudiation

Acknowledging payment and producing receipts are the basic properties required for any payment system. Such proof of payment can deter the alteration or destruction of transaction information during transmission (Neuman & Medvinsky, 1995, p.2).

2.3.2.3 Latency (Clearing Time and Frequency)

Even during peak load periods, payments should be transmitted at a steady pace. Customers and merchants should be able to use the e- payment mechanisms without noticeable delays in authorization and clearing (Schmidt & Muller, 1997). In a network, latency, a synonym for *delay*, is an expression of how much time it takes for a packet of data to get from one designated point to another. In some usages, latency is measured by sending a packet that is returned to the sender and the round-trip time is considered the latency (Rouse, 2006). The latency assumption seems to be that data should be transmitted instantly between one point and another (that is, with no delay at all).

In a computer system, latency is often used to mean any delay or waiting that increases real or perceived response time beyond the response time desired. Specific contributors to computer latency include mismatches in data speed between the microprocessor and input/output devices and inadequate data buffers. Within a computer, latency can be removed or "hidden" by such techniques as prefacing (anticipating the need for data input requests) and multithreading, or using parallelism across multiple execution threads (Rouse, 2006).

2.3.3 Economic Factors

2.3.3.1 Costs

There are two kinds of costs in adopting e-payment systems: fixed and transaction costs. Fixed costs refer to those of installing payment equipment such as card readers and payment software. Transaction costs are these incurred by merchants and

customers every time they undertake a business exchange. As many online transactions involve micropayment, low fixed and transaction costs are essential to the popularity of e-payment systems (Chou, 2002).

2.3.3.2 Customer Base

Compared with other criteria, the customer base by and large determines the performance of e-payment schemes. For payment systems that represent a certain network, its adoption depends on the number of customers and merchants using it. This is the so called positive network effect (network externality) (Katz & Shapiro, 1994). For instance, the utility of an e-payment instrument will be zero if only one participant is involved. However, utility will increase with the number of users who participate in the network (Shapiro & Varian, 1998). Unfortunately, positive network effect lead to start –up problem for new payment network as exceed a “critical mass” in order to succeed.

2.3.4 Social Factors

2.3.4.1 Anonymity

Although the ability to make untraceable transactions raises concerns in regard to tax evasion, money laundering and other criminal order to signal users, transaction anonymity is a basic right of consumer right. The identity of a consumer should be revealed if to other parties if she is unwilling to impart this information. Anonymous transactions further protect customers against price discrimination (Chou et al., 1997).

2.3.4.2 Privacy

In addition to a user's identity, her spending patterns and income sources should not be revealed to other parties without his/her permission. The legal requirement of privacy protects a user's transaction information from being revealed to other parties (Schmidt & Muller, 1997).

2.3.4.3 Convenience

Convenience refers to the ease with which users can spend, store, and transport a currency value via the payment system. The ability to operate e-payment systems on different platforms and networks infrastructures (i.e. telephone, modem, or internet connections) makes online transactions quicker and easier for users (Neuman & Medvinsky, 1995).

2.3.5 Security and Trust

2.3.5.1 Transaction Procedures in Mobile Payment

The primary objective of transaction procedures is to facilitate consumers' use of mobile payment and to eliminate their concerns about the security of EPS (Lawrence et al., 2002). To fulfill consumers' security requirements, well-defined EPS procedures should be prepared (Hwang et al., 2007). Typically, three principal procedures are deployed during the transaction process: (1) authenticating each participant prior to the transaction; (2) providing consumers with several separate steps toward the completion of the e-payment transaction; and (3) sending an acknowledgement after each transaction to assure consumers that the e-payment successfully executed the task (Hwang et al, 2007; Tsiakis & Sthephanides, 2005).

2.3.5.1 Security Statements in Mobile Payment

According to the report of Mukherjee and Nath (2003) security statements on EPS websites are crucial factors influencing consumers' trust in online activities. By informing and reassuring consumers regarding the security of their payment options, it will be possible to influence consumers' perceptions of security and trust in mobile payment (Lim, 2008). If normal consumers remain unaware of the level of security that is inherent to their transactions, they will be reluctant to engage in e-payments (Hegarty et al., 2003; Lim, 2008). Consumers' decisions to use any e-payment system will be considerably influenced by the quality of security statements available to them. According to Miyazaki and Fernandez (2000), argue that security-related statements that are posted on websites are likely to increase the chances of consumer purchase over the Internet.

2.4 Research Hypotheses

- H.1: Technological factor has positive relationship to adoption of mobile payment systems.
- H.1a: Reliability of service has positive relationship with adoption of mobile payment system.
- H.1b: Non repudiation has positive relationship with adoption of mobile payment system.
- H.1c: Latency has positive relationship with adoption of mobile payment system
- H.2: Economic consideration has positive relationship adoption to mobile payment system.

- H.2a: Cost of service has positive relationship with adoption of mobile payment system.
- H.2c: Customer base has positive relationship with adoption of mobile payment system.
- H.3: Social aspect associate with adoption of mobile payment systems.
- H.3a: Anonymity has positive relationship with adoption of mobile payment system.
- H.3b: Privacy has positive relationship with adoption of mobile payment system.
- H.3c: Convenience has positive relationship with adoption of mobile payment system.
- H.4: Security and trust has direct relationship with adoption of mobile payment system.
- H.4 (a): Transaction procedures are positively associated with adoption of mobile payment system.
- H.4 (b): Security statements are positively associated with adoption of mobile payment system.

2.5 Framework and Research Model

Aided by the discussions made in chapter two on the theories of Technology adoption and the empirical findings as established by the studies the researcher came-up with a number of interrelated variables related to the Mobile payment adoption in revenue collection and developed the conceptual model for this study as presented hereunder.

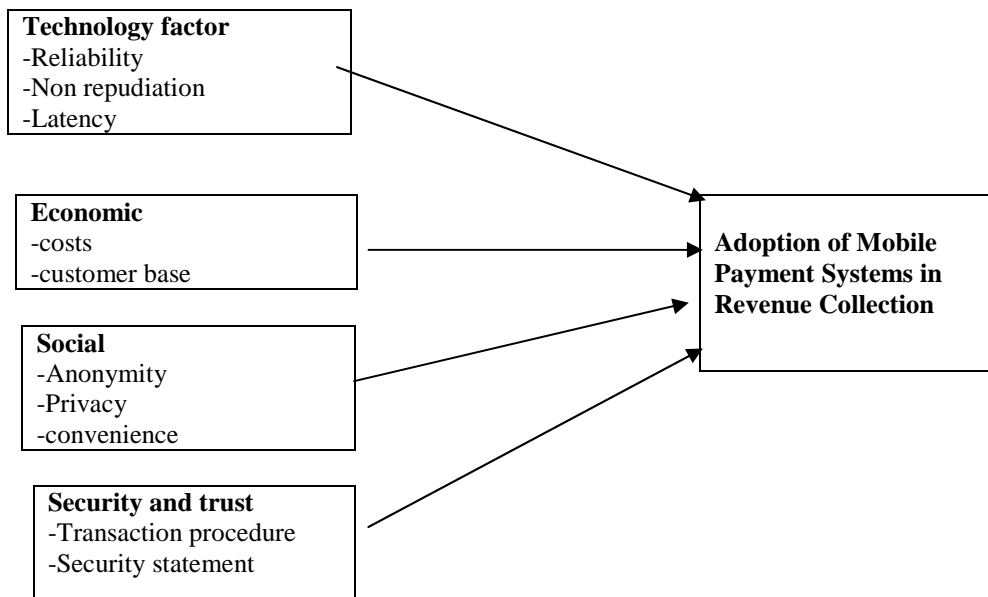


Figure 2.1 Conceptual Model of the Mobile Payment Adoption

Source: Modified from (Chou, 2002; Kim, 2011)

Each factor has sub factors as follows which make a total of eleven (11) sub factors. The elements that will be discussed here are based on the technology used, security and trust, economic status and social. However, the main focus in this study was technology. Technology Acceptance Model and Diffusion of Innovation deployed as fundamental framework in this study with the extension of economic element. To enhance the model, social factor of uncertainty avoidance has been placed in to see the effect between each innovation factor and intention to use mobile payment services. TAM model focuses on perceived benefit (Horst, Kuttschreuter & Gutteling, 2006).

Technology may involve both benefits and risks to the end users and the individual may want to weigh the risks and benefits before deciding to use the technology. Mobile payment services will not be an exception to this general rule too. In this

study, the interest is to find out what determine adoption of mobile payment in revenue collection. As mentioned earlier in literature review, the study evaluated how users determine the mobile payment. Whereby, citizens' perception on technological factors, social factors, security and trust and economic status will be assessed

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a way to systematically solve the problem. It may be understood as a science of studying how research is done scientifically. In it we study various steps that are generally adopted by a researcher in studying his research problem along with the logic behind the environment (Kothari, 2004).

This chapter presents the methodology and procedures that were used in this study. It essentially discusses the research design this are, study area, study population, unity of analysis, variables and their measurement, sample size and techniques, type and sources of data, Data collection methods and validity issues that was employed in the study.

3.2 Research Design

According to the nature and purpose of the study, case study research design was found to fit the study. Researcher (Robert & Yin, 1984) defines the case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 1984). Also Case studies focus on understanding the dynamics present within a single setting (Eisenhardt, 1989). So the researcher used case study in order to be focused to one company that is TRA, to get in-depth analysis of topic from one area.

3.3 Study Area

This study was conducted in Temeke region specifically to TRA Region Office. Temeke region was selected because of several reasons first; Its nearby where the researcher lives, the area fitted the purpose of the study, there are many Mobile agents dealing with transfers of money to TRA and users of Mobile as stated by (Intermedia, 2010) and also Temeke is one of the fastest growing region of revenue in Tanzania; therefore most of the ICT advancements and mobile payment centres in future are expected to be concentrated in Temeke. Hence the Temeke Region of Revenue offered a good study area for exploring the various challenges that implementers of mobile payment have to address so that various factors that hindered the adoption of mobile payment can be minimized in the future.

3.4 Study Population

The study is related to business operations located around the developing countries. In respect of triangulated factors by the researcher and from the study perimeters, in order to obtain significant results from this study, the researcher has decided to confine the study population into TRA region of revenue, the researcher extracted study sample from TRA region of revenue regardless of the income, age and status.

3.5 Units of Analysis

The main unit in this case was the individual using mobile payment since the researcher had to collect data from these individuals and, since the data that went into the analysis was the value obtained from the respondents, the unit of analysis was

actually the Mobile user's and agents and TRA staff in Temeke region.

3.6 Sample Selection

A sample is a subset of a population and sampling is the process of choosing an appropriate number of this population in order to make it possible to do generalizations for the study (Sekaran, 2000). Using a sample rather than examining an entire population for a study is fairly obvious regarding time, cost and human resources.

3.6.1 Non-probability

The sample selection used for this study was non-probability sampling where judgmental sampling was used. Judgmental sampling according to (Saunders et al. 2003), self-selection sampling occurs when you allow each case, usually individuals, to identify their desire to take part in the research.

You therefore: 1. Publicize your need for cases, either by advertising through appropriate media or by asking them to take part. 2. Collect data from those who respond. The researcher selected the sample based on criteria by looking respondent who would provide relevant and appropriate information for the study from mobile payment users from these criteria the researcher was able to select 180 sample sizes from 200 samples which was predicted.

3.6.2 Sample Size

In this study, the sampling size consisted of: (1) Mobile user (2) Mobile agents and. 3).TRA staff. In the first category which was the main target of the study, the total

volume of the sample was 170 users which among them, as indicated in table 3.1 below. In the second and third category, 04 TRA staff who were direct involved in Mobile matters, were identified and questionnaire given to them, and 06 were given to mobile agencies. According to the study objectives, Mobile users, TRA staff and mobile service providers were chosen as the main source of information for the study.

Table 3.1 Sample Size

Category	Frequency	Percent
User/Customers	170	94.5%
TRA staff	04	2.2%
Mobile payment agents	06	3.3%
Total sample size	180	100.0

Source: Researcher insight (2015)

3.7 Types and Sources of Data

There are two types of data which are also source of data. This is primary data and secondary data.

3.7.1 Primary Data

When someone refers to "primary data" they are referring to data collected by the researcher himself/herself. This is data that has never been gathered before, whether in a particular way, or at a certain period of time. Researchers tend to gather this type of data in order to get first-hand information. The primary data was collect through questionnaire and observation methods of data collection.

3.7.2 Secondary Data

Secondary data means data that are already available, they refer to the data which have already been collected and analyzed by someone else. When the researcher utilizes secondary data, then he has to look into various sources from where he can obtain them (Kothari, 1985). The major advantage of this process is that it serves as guide and aid on how to conduct the research (Saunders et al., 2003). Secondary data may either be published data or unpublished data.

The study used documentary tool of secondary data collection method where large part of study retrieved its data from documentary sources such as Books, Journals, reports, and others' academic papers. Other information were studied from official documents such as, manuals and sources like internet and websites, search engines with search tools like Google Scholar and search engine for online publications, were used as secondary data to support the study arguments depending on their accessibility.

3.8 Data Collection Methods

The data collection method used was Questionnaire method. The data was collected from Mobile users, TRA staff and Mobile agents using questionnaire. A questionnaire template (see Appendix 1) was developed with the research questions in mind, "Developing the questionnaire operationalized the research questions" (Punch, 2003).

The study by (Leedy's, 1997) state four practical guidelines in developing the questionnaire draft as follows: using clear language, meeting research aims, Planning

development, sample, distribution and collection and finally creating a solid cover letter.

The questionnaire was divided into different sections for easy reading and completion. A short, simple and informative cover letter (see Appendix 1) was created to inform the participants of the aims and importance of the research. It was written carefully using clear language to encourage participants to provide honest and unbiased information.

The questionnaires designed for studying the factors that influence the adoption of the mobile payment systems among individuals in Tanzania. The questionnaires were distributed to the selected persons representing the sample to the target population and partly were administered by the researcher to fasten the data collection process. Where by 200 questionnaires were distributed to the respondents in hard copy by looking on the knowledge of customers and 180 respondents succeeded to fill and return questionnaires.

3.9 Validity and Reliability Issues

"Any research can be affected by different kinds of factors while, extraneous to the concerns of the research, can invalidate the findings" (Seliger & Shohamy, 1989). The research was valid because the sample of any valid research should have more than 30 respondents. As indicated by Economist (1997) and Saunders et al. (2000) a minimum of 30 items to be included in the sample when statistical analysis is to be adopted then this research show the validity by using 180 respondents as sample size.

3.10 Data Analysis Methods

This study employs the quantitative method of analysis. Quantitative method used when data were collected and processed analytically. The data of this study were data numerically coded and the result was in form of statistical results (Lekvall & wahlbin, 2001). The quantitative method is appropriate to use when there is a need to generalize and apply the sample data to the population in order to find patterns and trend (Davidsson & Pater, 2003).

The data collected were analyzed quantitatively using predictive analysis software (PASW) where by descriptive statistics was done especially frequency in order to clean the data and to analyze background information. A regression was used to determine the potential connection between dependent and independent variables of this study (technology, social, security and trust, economic). Accordingly, the regression was able to identify potential factors that have a significant influences adoption of mobile payment systems.

CHAPTER FOUR

4.0 PRESENTATION OF FINDINGS

4.1 Introduction

This chapter deals with the presentation of research findings. This include data preparation, data editing, coding and cleaning; it also have descriptive statistics, simple linear regression and hypothesis testing on the factors influencing adoption of mobile payment systems by predictive analysis software (PASW) and SPSS.

4.2 Sample Characteristics

4.2.1 Number of Respondents

The study having 180 respondents as sample, distributed in three categories where 170 (95.3%) were users/customers of mobile payment, 04 (2.2%) were agents of mobile payment and 06 (3.3%) were TRA staff, this makes a total of 180 respondents which is 100% as shown by Table 4.1.

Table 4.1 Number of Respondents

Category	Frequency	Percent
user/customer	170	95.3
TRA staff	06	3.3
Mobile payment agent	04	2.2
Total	180	100.0

Source: Researcher (2015)

4.2.2 Gender

Among respondents, 98 (54.4%) were males and 82(45.6%) were females. The weighting of this sample does not equate to an equal distribution between males and

females. This indicates that there is high possibility of an effect from gender bias to occur as it can be seen in table 4.2.

Table 4.2 Respondents Gender

Category	Frequency	Percent
Male	98	54.4
Female	82	45.6
Total	180	100.0

Source: Researcher (2015)

4.2.3 Respondents Age

As table 4.3 and figure 4.2 below shows that most of the age which participated were between the age of 20-40 years which were 159 out of 180 respondents about 88.3% of the whole respondents because most of these age use mobile and is the generation born in development of technology than other ages like below 20 year and above 40 years who use for purpose and these age have many people than other age group ,then below 20years were 6 respondent which were 3.3% and the age of 41-60 years were 15 respondents which were 8.3% and at age of 60 years and above no any respondents participated.

Table4.3 Respondents Age

Age category	Frequency	Percent
> 20years	6	3.3
21-40 years	159	88.3
41-60 years	15	8.3
60 years <	0	0
Total	180	100.0

Source: Researcher (2015)

4.2.4 Occupation

Most of the respondents were self-employed which were 48.9% of the all respondents because of their willingness and time to fill the questionnaire than employed which were 22.8%, student which were 16.7% and respondents with business were 11.7% all these make a total of 180 respondents as shown by table 4.4.

Table 4.4 Respondent Occupation

Category	Frequency	Percent
Student	33	16.7
Employed	41	22.8
self employed	88	48.9
doing business	21	11.7
Total	180	100.0

Source: Researcher (2015)

4.2.5 Application Conducted by Mobile phones

Most of the user of Mobile payment uses all the application about 138 respondents which were 76.7% of all respondents including mobile and little percent use for receiving information from TRA which were 2 (1.1%) respondents. Then the other application used by Pay tax (revenue) 17 (9.4%), To ask service offered by TRA 11 (6.1%), Transfer funds from bank account to TRA (2.8%) and To check how much I supposed to pay for TRA 7 (3.9%) as shown by table 4.6 and figure 4.3.

Table 4.5 Respondents Application Used

Category	Frequency	Percent
To ask services offered by TRA	11	6.1
Receiving information from TRA	2	1.1
Pay Tax (revenue)	17	9.4
Transfer funds from bank account to TRA	5	2.8
To check how much I supposed to pay for TRA	7	3.9
all of the above	138	76.7
Total	180	100.0

Source: Researcher (2015)

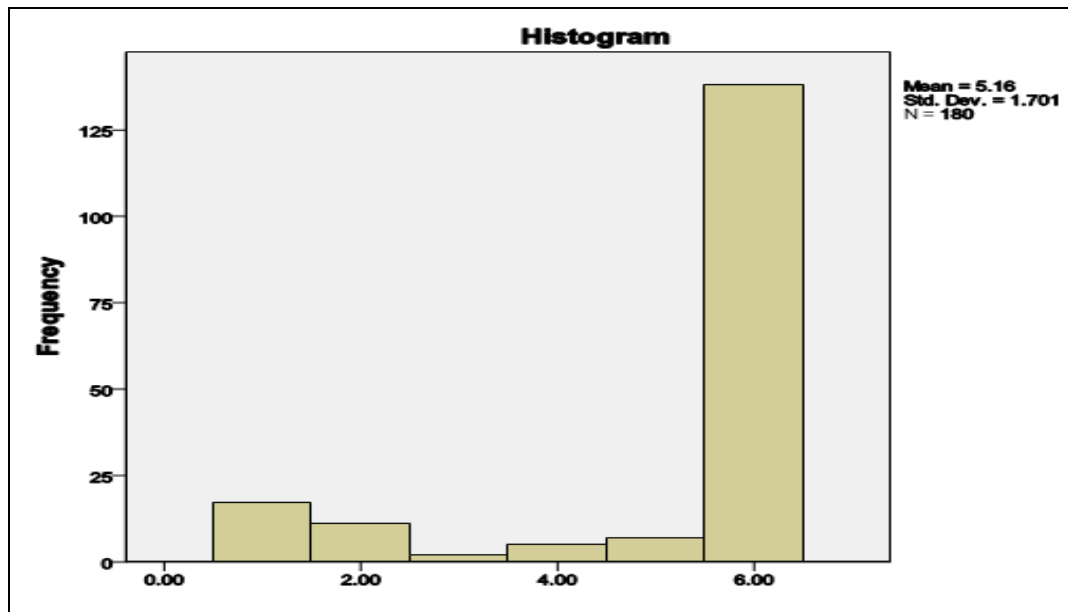


Figure 4.2 Application Used

Source: Field Data (2015)

4.2.6 Experience

As shown by table 4.6 and figure 4.4 below, The experience show that many respondents have an experience of more than one year using Mobile which is 82% of whole population. This shows that they have adopted and they are going on adopting new technology as mobile payment is concern, and still there is 10% of people adopting technology every day that is shown by less than one year in using Mobile then less than one month experience were 2.8%.

Table 4.6 Experience on the Use of Mobile Payment

Category	Frequency	Percent
less than one month	5	2.8
less than one year	18	10.0
one year	9	5.0
more than one year	148	82.2
Total	180	100.0

Source: Field Data (2015)

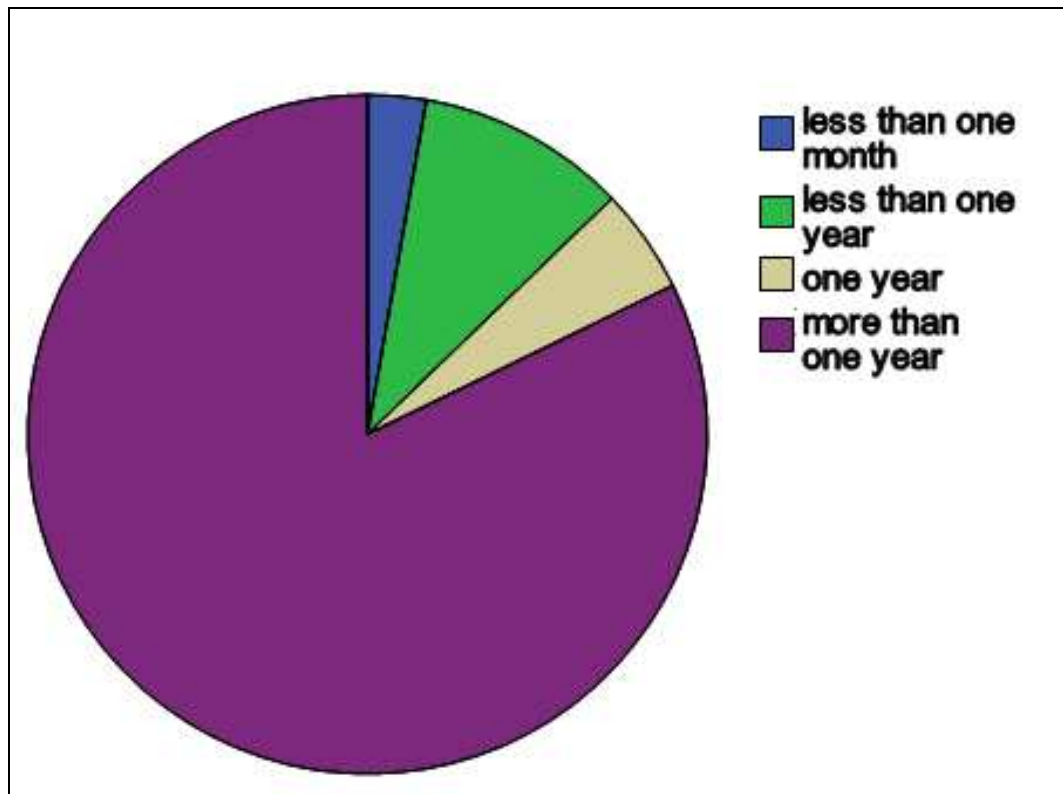


Figure 4.3 Pie Chart on Experience on the Use of Mobile

Source: Field Data (2015)

4.3 Detailed Data Analysis

4.3.1 Hypothesis Testing

Simple regression Analysis was employed to test the Hypotheses that were earlier predicted in the first chapter of this study report. Simple regression suggested to be used as, regression analysis is a proven suitable method for data analysis, especially when there are several independent variables having effects on a dependent variable, while at the same time those independent variables are correlated (Malhotra (2007)). To extract the potentials of this approach, the researcher alternatively opted to conduct the simple regression based on the factors related to the hypotheses identified in this study.

As it is shown in chapter one, that the general objective of this study was to determine factors influencing adoption of mobile payment in revenue collection in Tanzania; The formulated hypotheses were in four groups (section 1.4) which were explained as follows:

- Technology factor (reliability, nonrepudiation, latency)
- Economic factor (cost, monetary convert ability, customer base)
- Social aspect (anonymity, privacy, convenience)
- Trust and security (transaction procedures, security statement)

The linear regression models and estimated the regression coefficients by using the statistical software package SPSS are used.

4.3.1.1 Technological Factor

The first regression analysis to be presented was technological factor, a series of regression analyses were run in respect of each independent variable as it was presented in the Model. To the results, the researcher combined the sub factors to presents the results in one table 4-8 below.

The factor analysis aimed to find out whether the theoretically technological factors conform to our study results. The hypotheses for testing adoption of mobile payment include technological factors such as (H1a) reliability, (H1b) Nonrepudiation, and (H1c) Latency. In this Section, the discussion focuses on how the hypotheses related to technological factors and this hypothesis were as follows as indicated by section 2.5 in chapter 2:

H.1a: Reliability is positively related to adoption of mobile payment system.

H.1b: Non-repudiation has positive relationship with adoption of mobile payment system.

H.1c: Latency is positively related to adoption of mobile payment system.

Then simple regressions (Table 4.7) show the result such as beta coefficient, R^2 , t-values, and significance level.

Table 4.7 Simple Regression Analysis on the Influence of Technological factors

DV	Hypotheses	Independent Variables	DF	Beta Coeff	t- values	Sig.	R2	Interpretation
Adoption of mobile payment	H1a	Reliability	179	-.032	-.430	.668	.001	NS
	H1b	Nonrepudiation	179	-.181	-2.452	.015	.033	S
	H1c	Latency	179	.175	2.368	.019	.031	S

DV - Dependent variables, NS – Not Significant, S – Significant , DF – Degree of Freedom.

Source: Field Data (2015)

- Hypothesis1a: examined the relationship that reliability is positively related to adoption of mobile payment system, as the result shown by table4.7 above that it was not significant with $p > 0.05$.
- Hypotheses H1b: examined the relationships that, Non-repudiation is positive related to adoption of mobile payment systems, as shown by table 4.7 with ($\beta = -0.181$) and it was significant with $p < 0.05$;
- Hypothesis1c: examined the relationship that, Latency is positively related to adoption of mobile payment systems, result shown by table 4.8 that it was significant with $p < 0.05$; the result supported.

It was found that non-repudiation and latency are significant then they determine adoption of mobile payment systems by non-repudiation ($\beta = -0.181$, p-value = 0.015, $R^2 = 0.033$) and latency ($\beta = 0.175$, p-value = 0.019, $R^2 = 0.031$). Unexpectedly, it was found that reliability is not a significant determiner of adoption of mobile payment systems ($\beta = -0.032$, p = 0.668, $R^2 = 0.001$). Where by latency has positive relationship ($\beta = 0.175$) and non-repudiation has negative relationship ($\beta = -0.181$) to the model.

Based on the analysis carried out in Table 4.7., the summary of the hypotheses was provided below.

According to the analysis carried out in Section 4.3.4.1. It was found that the hypotheses concerning non repudiation and latency are partially accepted to be related to adoption of mobile payment systems (refer also to table 4-9). It is confirmed that reliability is not significant and therefore it was totally rejected. A detailed discussion of testing the hypotheses is presented in Chapter 5.

Table 4.8: Summary of Hypotheses Testing on the Influence of Technological Factors

Dependent Variable	Hypotheses	Independent variables	Significance	Nature of relationship	Hypotheses Conclusion
Adoption of mobile payment systems	H1a	Reliability	Not Significant	-	Rejected
	H1b	Non-repudiation	Significant	+ve	Accepted
	H1c	Latency	Significant	+ve	Accepted

Key: +ve - positively related; -ve – negatively related.

Source: Field Data (2015)

4.3.1.2 Economic Factors and Adoption of Mobile Payment

The next set of analysis was performed on the factors Identified to be the economic factors and results were presented by table 4.8 as regressed to the dependent variable of adoption mobile payment. In Section 2.3.3, the second hypotheses were explained. The hypotheses were grouped under the economic factors as revisit figure 2-1. It was important to examine the effects of economic factors on adoption of mobile payment systems. As the hypotheses discussed in Chapter 2 was suggested in the factor analysis carried out (cost H2a, and customer base H2b). The hypotheses include the influence on adoption of mobile payment systems. The hypotheses were as follows as indicated in section 1.4.

H.2a: cost has positive relationship with adoption mobile payment systems.

H2b: customer base has positive relationship with adoption mobile payment systems.

Table 4.9: Simple Regression Analysis on the Influence of Economic Factors

DV	Hypotheses	Independent Variables	DF	Beta Coeff	t-values	Sig.	R ²	Interpretation
Adoption of mobile payment	H2a	Cost	179	.149	2.004	.047	.022	S
	H2c	Customer base	179	.087	1.162	.247	.008	NS

Key: DV - Dependent variables, NS – Not Significant, S – Significant, DF-degree of freedom.

Source: Field Data (2015)

- Hypothesis2a: examined the relationship that cost has negative relationship to adoption of mobile payment system as shown by table 4-9 with ($\beta = -0.149$) and it was significant with $p < 0.05$.

- Hypothesis2b: examined the relationship that, customer base has positive relationship to adoption of mobile payment systems, as shown by table 4-9 that it was not significant with $p > 0.05$.

It was found that cost was significant then it determine adoption of mobile payment systems in economic factors by ($\beta = -0.149$, $p\text{-value} = 0.047$, $R^2 = 0.022$) but with negative relationship and then, and customer base ($\beta = -0.087$, $p = 0.247$, $R^2 = 0.008$).

4.3.1.3 Economic Factors - Hypotheses Summary

Based on the analysis carried out in Section 4.3.4.2, the summary of the hypotheses was provided. According to the analysis carried out in Section 4.3.4.2. It was found that the hypotheses customer base were totally rejected to be related to adoption of mobile payment systems (refer also to table 4-10). It is confirmed that cost is significant and therefore it was accepted. A detailed discussion of testing the hypotheses is presented in chapter 5.

Table 4.10: Summary of Hypotheses Testing on the Influence of Economic Factors

Dependent Variable	Hypotheses	Independent variables	Significance	Nature of relationship	Hypotheses Conclusion
Adoption of mobile payment systems	H2a	Cost	Significant	+ve	accepted
	H2c	Customer base	Not Significant	-	rejected

Key: +ve - positively related; -ve – negatively related.

Source: Field Data (2015)

4.3.1.4 Social Factors

The third regression analysis to be presented was social factor, a series of simple linear regression analyses of three sub factors (anonymity, privacy, convenience) were run in respect of each dependent variable as it was presented in the Model. The results were combined to form the present results in one table 4.16. In Section 2.3.3, the third hypotheses were explained. The hypotheses were grouped under social factors as revisit figure 2.1. It was also important to examine the effects of social factors on adoption of mobile payment systems. As the hypotheses discussed in Chapter 2 was suggested in the factor analysis carried out (convenience H3a, Anonymity H3b, and privacy H3c) As section 1.3 shows the objective that is, are social factors influence the adoption of mobile payment systems. Simple regression analysis approach was adopted for testing the hypotheses. The hypotheses were as follows as indicated in section 2.5.

H.3a: anonymity has positive relationship with adoption mobile payment systems.

H.3b: privacy has positive relationship with adoption mobile payment systems.

H.3c: convenience has positive relationship with adoption mobile payment systems.

Table 4.11: Simple Regression Analysis on the Influence of Social Factors

DV	Hypotheses	Independent Variables	DF	Beta Coeff	t-values	Sig.	R ²	Interpretation
Adoption of mobile payment	H3a	Convenience	179	.121	1.622	.107	.015	NS
	H3b	Anonymity	179	-.039	-.520	.604	.002	NS
	H3c	Privacy	179		.100	1.346	.180	NS

Key: DV - Dependent variables, NS – Not Significant, S – Significant, DF – Degree of Freedom.

Source: Field Data (2015)

It was found that all social factors were not significant they do not relate to adoption of mobile payment systems by convenience ($\beta = 0.121$, p-value = 0.107, $R^2 = 0.015$) .Anonymity ($\beta = -0.39$, p-value = 0.640, $R^2 = 0.000$) and privacy ($\beta = 0.100$, p-value=1.346, $R^2 = 0.180$).

- Hypothesis3a: examined the relationship that, anonymity has a positive relationship to adoption of mobile payment systems , the result shown by table 4-12 that it was not significant with $p > 0.05$.
- Hypotheses H3b: examined the relationships that, privacy has positive effect to adoption of mobile payment systems, the result shown by table 4-12 that it is not significant with $P > 0.05$.
- Hypothesis3c: examined the relationship that, convenience has positive relationship to adoption of mobile payment systems, result show by table 4-12 that it was not significant with $p > 0.05$.

4.3.1.5 Social factors - Hypotheses Summary

Based on the analysis carried out in Section 4.3.4.3, the summary of the hypotheses was provided.

Table 4.12 Summary of Hypotheses Testing on the Influence of Social Factor

Dependent Variable	Hypotheses	Independent variables	Significance	Nature of relationship	Hypotheses Conclusion
Adoption of mobile payment systems	H3a	Convenience	Not Significant	-	rejected
	H3b	Anonymity	Not Significant	-	Rejected
	H3c	privacy	Not Significant	-	rejected

Key: +ve - positively related; -ve – negatively related.

Source: Field Data (2015)

According to the analysis carried out in Section 4.3.4.3. It was found that the hypotheses concerning social factors that is convenience, Anonymity and privacy were rejected to be related to adoption of mobile payment systems (refer also to table 4.12 below). A detailed discussion of testing the hypotheses in chapter 5.

4.3.1.6 Trust and Security

The last set of the regression analysis to the trust and security was done against adoption of mobile payment systems. The results are presented on table 4.13 below.

In Section 2.3.4, the forth hypotheses were explained. The hypotheses were grouped under trust and security as revise figure 2.1. It was also important to examine the effects of trust and security aspects on adoption of mobile payment systems. As the hypotheses discussed in Chapter 2 was suggested in the factor analysis carried out (security statement H4b, and transaction procedures H4a). The hypotheses include the influence on adoption of mobile payment systems. Simple regression analysis approach was adopted for testing the hypotheses:

The hypotheses were as follows:

H4a: Transaction procedures are positively related to adoption mobile payment systems.

H.4b: Security statements are positively related to adoption with mobile payment System.

It was found that security statement was significant then it determine adoption of mobile payment systems by ($\beta = 0.175$, $p\text{-value} = 0.019$, $R^2 = 0.031$) and with

positive relationship while transaction procedures was not significant by ($\beta = 0.038$, $p = 0.612$, $R^2 = 0.001$) as table 4-13 show.

Table 4.13 Simple Regression Analysis on the Influence of Trust and security

DV	Hypotheses	Independent Variables	DF	Beta Coeff	t-values	Sig.	R ²	Interpretation
Adoption of mobile payment	H4b	Security statement	179	.175	2.368	.019	.031	S
	H4a	Transaction procedures	179	.038	.508	.612	.001	NS

Key: DV - Dependent variables, NS – Not Significant, S – Significant, DF – Degree of Freedom.

Source: Field Data (2015)

- Hypothesis H4a: examined the relationship that, Transaction procedures has positive relationship to adoption of mobile payment system, the result show that it was significant with $p < 0.05$ the result supported.
- Hypotheses H4b: examined the relationships that, Security statement will have a positive effect to adoption of mobile payment systems, the result is not significant with $P > 0.05$; the result did not supported.

4.3.1.7 Trust and security - Hypotheses Summary

Based on the analysis carried out in Section 4.3.5.4, the summary of the hypotheses was provided.

According to the analysis carried out in Section 4.5.3.3. It was found that the hypotheses security statement is accepted to be related to adoption of mobile

payment systems and transaction procedures is rejected (refer also to table 4-14 below). A detailed discussion of testing the hypotheses in chapter 5.

Table 4.14: Summary of Hypotheses testing on the Influence of Trust and Security

Dependent Variable	Hypotheses	Independent variables	Significance	Nature of relationship	Hypotheses Conclusion
Adoption of mobile payment systems	H4a	Security statement	Significant	+	Accepted
	H4b	Transaction procedures	Not Significant	-	Rejected

Key: +ve - positively related; -ve – negatively related

Source: Field Data (2015)

4.3.1.8 Hypothesis summary

The hypothesis summary table 4.16 below show the factors rejected and accepted.

Table 4.15 Summary of all Hypotheses Testing

Factors for adoption m-payment	Hypothesis Code	Independent variable	R ²	Dependant variable	Hypothesis Conclusion	Section
Technological factors	H1a	Reliability	0.001	Adoption of m-payment	Rejected	Section 4.3.5.1
	H1b	Nonrepudiation	0.033	Adoption of m-payment	Accepted	
	H1c	Latency	0.031	Adoption of m-payment	Accepted	
Economic factors	H2a	Cost	0.022	Adoption of m-payment	Accepted	Section 4.3.5.2
	H2c	Customer base	0.008	Adoption of m-payment	Rejected	
Social factors	H3a	Convenience	0.015	Adoption of m-payment	Rejected	Section 4.3.5.3
	H3b	Anonymity	0.002	Adoption of m-payment	Rejected	
	H3c	Privacy	0.180	Adoption of m-payment	Rejected	
Trust and security	H4b	Security statement	0.031	Adoption of m-payment	Accepted	Section 4.3.5.4
	H14a	Transaction procedures	0.001	Adoption of m-payment	Rejected	

Source: Field Data (2015)

CHAPTER FIVE

5.0 DISCUSSION OF THE STUDY FINDINGS

5.1 Introduction

The main purpose of this study was to examine the key factors influencing the adoption of mobile payment systems in revenue collection as is shown in chapter 1 (section 1.3) and the objectives were four as indicated in section 1.3.2 . This chapter discusses the factors influencing adoption of mobile payment in two sections where the second section has four sub-sections as shown below:

- How technology factors determine adoption of mobile payment systems section 5.3.1.
- How economic factors influence adoption of mobile payment systems section 5.3.2.
- How social factors determine adoption of mobile payment systems section 5.3.3
- How security and trust influences adoption of mobile payment systems section 5.3.4.

These factors used to explain the adoption but the theoretical part is also important in the use of these factors as they are based or rooted from theories. Integrated theoretical part used in this study is a hybrid of several theoretical foundations. Several criteria were considered in developing the theories to be used. The criteria guiding the theories included the behavior characteristics, the nature of network in adoption and usage of mobile payment, external factors influencing adoption of mobile payment including social factors.

Therefore, Theory of planned behaviour which explains the degree of perceived behaviour and altitude on the adoption of mobile payment systems (Ajzen, 1991; Mathison, 1991; Taylor & Todd, 1995) was necessary to be considered. This is because the theory suggests that since people do not have full control over their online payment transactions, perceived behavioral control should become a critical component of payment adoption and Diffusion of Innovation (DOI) theory (Rogers, 1995; Rogers, 2003).

The study went beyond in looking on the importance of motivational model (Deci, 1975) and the mental Bandura's cognitive theory (Bandura, 1986, Cognitive theory 1986) this theories provided an opportunity to include social factors since they tend to explain how people deal with environment to determine personal needs to self-determinant and what people think, believe and feel to affect how they behave.

The last theory used to adopt technological factors was technological acceptance model (TAM) (Devi's et al., 1989) which tend to be information system theory that explain how users come to accept and use new technology, as the theory also argue that the user adoption and usage behavior are determined by intension to use IT. So, this theory guides the study on the technological factors which are the main factors in adoption of mobile payment systems.

It was examined that the usage of mobile payment systems as dependent factor as indicated in appendix 1 and four independent factors which included the following: technology factors, economic factors, social factors and trust and security with eleven subsections which were (reliability, non-repudiation, latency, cost monetary

convert ability, customer base, anonymity, privacy, convenience transaction procedures and security statement) section 2.3.0 were used.

5.2 Discussion of the Hypothesis

In this section, four groups of hypothesis were discussed, compared with the literature review and finally a researcher's view was presented.

5.2.1 Technological Factors

As discussed in literature review section 2.3.2, technological factors supported by other empirical evidences, the sub factors were reliability, non-repudiation and latency are reliable and valid for this study's explanation of the technological influences to the personal decision to adopt e-payment discussed by Neuman and Medvinsky (1995), Schmidt and Muller (1997). In this study therefore, it was hypothesized that:

H1a: Reliability is positively related to adoption of mobile payment systems.

H1b: Non-repudiation has positive relationship to adoption of mobile payment systems.

H1c: Latency has positive relationship to adoption of mobile payment systems.

As technological factors was the main factors and it was supported by technological acceptance modal that explaining how users come to accept and use technology this can be applicable to the decision of people to use mobile payment technology. Although the result for latency show that latency (H1c) was not significant with $p > 0.5$, where by latency deals with making people able to use the e-payment without delays in authorization and clearing then latency was totally rejected to adoption of

mobile payment. The reason for rejection could be lack of knowledge on faster payment, poor understanding of the questions that lead to wrong answers and failure to measure latency which is so important in adoption of any payment where by any payment are recommended to be faster.

The result for reliability (H1a) and non-repudiation (H1b) are significant with $p < 0.05$, suggesting that the hypothesis supported. According to (Chou Y et al, 2004) due to the study conducted by this researcher technology contributed to 48% score because technology play a predominant role in experts choice of e-payment systems, But this being done in Tanzania has shown a difference accepted by small percent in reliability and non-repudiation this could be because the study is done in different continent where people differ in understanding and answering of questions.

5.2.2 Economic Factors

Customer base and cost have also tested to be reliable and valid to the explanation of the economic factors that influences the adoption of mobile payment systems. Also referring to theory of planed behavior t in section 2.2.2 which suggests that, since people do not have full control over their online payment transactions, perceived behavioral control should become a critical component of payment adoption. Where by people perceive differently, some think to adopt the cost should be low and other do not consider cost but capability and other do not consider monetary convert ability and income base. As the objective of the study is to examine if economic factors influences adoption of mobile payment from this objective there were two hypothesis as shown in section 2.5.

H.2a: Cost has positive relationship with adoption mobile payment system

H.2b: Customer base has relationship with adoption mobile payment system

Surprisingly the result for customer base (H2b) were not significant with $p > 0.5$, hence it was totally rejected. But on the other hand the current results show that: H2a is significant with p value less than 0.05, which is accepted. This means that in Tanzania, there are some customers consider cost in adopting mobile payment systems like in the research done by Shun and Swatman (1997) they found that low transaction cost were favoured customers and merchants to adopt payment systems.

5.2.3 Social Factors

The factors; Anonymity, privacy and convenience were as well analysed to be valid and reliable to explain their influences to the adoption of mobile payment systems as it was confirmed in section 2.2.2 of chapter two that their theories which provided an opportunity to have social factors since they explained how people deal with environment to determine personal needs to self-determinant and what people think, believe and feel that might affect how they behave (Deci, 1975, Bandura's theory, 1986; Cognitive theory, 1986). The social factors were tested under three hypotheses, namely:

H.3a: Anonymity has positive relationship with adoption mobile payment systems.

H.3b: privacy has positive relationship with adoption mobile payment systems.

H.3c: Convenience has positive relationship with adoption mobile payment systems.

Based on the hypotheses summary conclusion presented in Section 4.3.6, it was concluded that the social factors were not significantly with (H2a, H2b and H2c $p>0.05$) related to adoption of mobile payment systems.

The conclusion is surprisingly unlike other findings such as of Clemons and Croson (1997) who found a significant relationship on factors affecting success of new payment and also explained how universally payment is (see also Poon & Chou, 2001; Turbanand & King et al., 2002). The insignificant relationship between social factors (anonymity, privacy and convenience) and adoption of mobile payment systems in Tanzania may be explained by the fact that customers who use or adopt m-payment have limited opportunities for understanding and knowledge on the perception of social factors for adopting mobile payment. As the findings indicated, most of respondent were youth around 20-40 years they might not understand well social influence on adoption of mobile payment and all the reasons for insignificant could be lack of seriousness when the respondent were answering the questionnaire that brought wrong answer then this brought insignificant.

It is also believed that anonymity, privacy and convenience are very important in adoption of any payment system as argued by (Ychou, 2004) who found that in understanding m-commerce payment this is difference in Tanzania. As long as the mobile payment systems application is a new phenomenon in Tanzania, it will take a considerable time before all the people to realise that it is helpful to society. Teo and Tan (1998) found that it was too early to estimate the benefits of e-commerce before it is widely accepted and implemented. Therefore in this study, we are addressing all

telecommunication and monetary like Banks Company who has introduced the mobile payment to emphasize the users know the important things on adoption including social factors.

5.2.4 Trust and Security

Previous studies as indicated in section 2.3.5 of chapter two, it is argued to fulfill consumers' security requirements, well-defined EPS procedures should be prepared (Hwang et al., 2007). And also By informing and reassuring consumers regarding the security of their payment options, it will be Possible to influence consumers' perceptions of security and trust in EPS (Lim, 2008). This also could influence customer to adopt a certain payment systems. Relevant to trust and security including transaction procedures and security statement this influenced the study to hypothesize that:

H.4a: Transaction procedures are positively related to adoption mobile payment systems.

H.4b: Security statements are positively related adoption to mobile payment systems.

The analysis carried out in Section 5.3.5.4 concludes that the security statement (H4b) was significant with $p < 0.5$, and is positively related adoption of mobile payment. Mukherjee and Nath (2003) also found that Security statements on EPS website are a crucial factors influencing customer trust in online activities and (Lim, 2008).

But on the other side the result for transaction procedures H4a was not significant with $p > 0.5$, hence it was totally rejected. The reasons for rejection could be the transaction procedures should not be considered when adopting e-payment as it was found that transaction procedures was not significant by Kim (2010) on an empirical study on customer perception on trust and security hence the variable was wrong to be considered in adoption of mobile payment.

5.3 Conclusion

This literature is not in the same vein with the result of this study. This is because reliability H2a), customer base (H2b), anonymity (H3a), privacy (H3b), convenience (H3c) and transaction procedures (H4a) were not significant with $P > 0.5$. So the hypotheses were rejected.

The reasons behind could be that the suggested factors did not fit the study other reasons could be multi collinearity of the variables that bring the wrong answers, low knowledge about mobile payment systems and finally it is believed that most of Tanzanian are always not familiar with the questions that ended up to fill wrong information this can be a reason.

The remaining four hypotheses (non-repudiation (H1b), latency (H1c), cost (H2a) and security statement (H4b) were significantly supported. These results provide the importance of these sub factors on adoption of mobile payment these were reliability, non-reputation, costs and security statement. These should be considered on adoption

of mobile payment as to Tanzanian context but not hundred percent proved since the sample used might be wrong.

CHAPTER SIX

6.0 SUMMARY, CONCLUSIONS, AND POLICY IMPLICATIONS

6.1 Introduction

This chapter presents the outline of this study briefing the theoretical, conceptual and practical issues as related to the adoption of mobile payment systems in revenue collection. It also concludes the study by describing how the finding have provided answers to the research objectives and questions, recommendations, areas for further studies and policy implications.

6.2 Summary

The adoption of mobile payment system in revenue collection in the developing countries has been growing faster than banks, where by people use mobile as bank without branch to transfer money, pay for bill, receive payment and keep money, since mobile payment systems is more available than banks for stance in the villages. This progress has proved the revenue collection improvement. Though the study provided different result from the factors adopting mobile payment then other factors might be considered to realise the important factors to be considered in adoption of mobile payment.

6.3 Conclusion

In short the researcher acknowledges the influential role of group factors that influences the adoption mobile payment systems as indicated by (Chou et al, 2004). Uniquely each factor plays an important influence depending to its value of

significance to the people as influenced by other factors. The factors for mobile payment systems adoption among the third world economies as compared to the developed economies are not that much significantly different except for their liability, customer base, anonymity, privacy, convenience and transaction procedures that have relatively proven insignificant to the developing environment setting. The adoption decision does not confine itself only to the factors identified herein.

6.4 Recommendations

Several recommendations can be made to increase level of adoption of mobile payment systems. Firstly, in order to overcome barriers when performing any payment using mobile service the importance of transaction procedures should be considered as the result show that transaction procedures are insignificant, it seems people do not consider the procedures when performing mobile payment services. Then to reduce transaction barriers like sending money to wrong account, receive and sending information without intention transaction procedures to mobile payment systems users should be considered as important tool.

Social factors like privacy, convenience and anonymity should be considered by the adopters when involved in any payment systems this will allow users to know social influence in adopting mobile payment systems as it was confirmed by the study that social factors are insignificant that they do not influence adoption of mobile payment system.

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